

# Coastal Program Bulletin

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NEW HAMPSHIRE OFFICE OF STATE PLANNING • MARCH 1992

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## Endangered and Threatened Birds in the Coastal Zone

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### Introduction

New Hampshire's coastal wetlands, tidal waters and shorelands provide critical habitat for certain animal and plant species that are endangered or threatened with extinction. This bulletin focuses on several endangered bird species which frequent the New Hampshire coast including: bald eagle, piping plover, northern harrier, osprey, upland sandpiper, and common tern.

The Audubon Society of New Hampshire has conducted field studies on the distribution, habitat use, status and nesting success of these birds. Matching funds were awarded from the New Hampshire Coastal Program. The information generated from these projects can facilitate land use planning at the local level by identifying key habitat areas where impacts should be avoided. Management and habitat protection for these six species are critical to their future survival in New Hampshire.

One of the 16 New Hampshire Coastal Program policies is to encourage the investigation of the distribution, habitat needs, and limiting factors of rare and endangered species. This is accomplished through financial support for projects such as the those conducted by The Nature Conservancy, the Audubon Society of New Hampshire, and the New Hampshire Fish and Game Department. The Coastal Program is also involved in establishing

policy and cooperating with other agencies that are responsible for monitoring species and habitat.

The state Endangered Species Act enacted by the New Hampshire Legislature in 1979, is administered by the New Hampshire Fish and Game Department. The Endangered Species Act protects animal species only. The New Hampshire Plant Protection Act is administered by the Department of Resources and Economic Development and focuses on the protection of rare and endangered plant species in New Hampshire.

Endangered species are also protected at the federal level through the Endangered Species Act administered by the U.S. Fish and Wildlife Service (USF&WS). This act requires federal, state and local agencies to certify that their projects and permits will have no detrimental effects on federally listed species. Federal officials work closely with state agencies and conservation organizations to protect and manage federally listed species. USF&WS also has the responsibility of listing species, enforcement, and identification of critical habitat. (At present there are no designated critical habitat sites in NH on the Federal list).

Detailed descriptions of each of the six endangered and threatened species in New Hampshire's coastal area begin on the next page. Findings of the field work and monitoring activities help give a picture of problems and opportunities associated with these endangered and threatened species.

## BALD EAGLE - state and federally endangered

The adult bald eagle (*Haliaeetus leucocephalus*) is a large bird of prey whose white head and tail make it unmistakable. The immature bird is brown and mottled irregularly with white until its fourth year. It flies with deep strokes and soars on flattened wings. Historical documentation of the bald eagle's presence in New Hampshire is incomplete. Records indicate that historically, these birds nested in at least 6 locations in New Hampshire.

It can be presumed that eagles have nested near most large lakes and rivers prior to European settlement. By the late 1800's the bald eagle had become an uncommon summer resident in the central and northern parts of the state, and occasional at all seasons in the southwestern region. Bald eagles, along with other large raptors suffered severe persecution throughout much of their range until at least the 1920's for their perceived predation on livestock and game birds.

Congress adopted The Bald Eagle Protection Act in 1940 and The Endangered Species Act in 1973, both of which provided legal protection for surviving populations. Since World War II, pesticide contamination and habitat loss have resulted in significant population declines. The bald eagle is now listed as an endangered species in most of the continental United States.

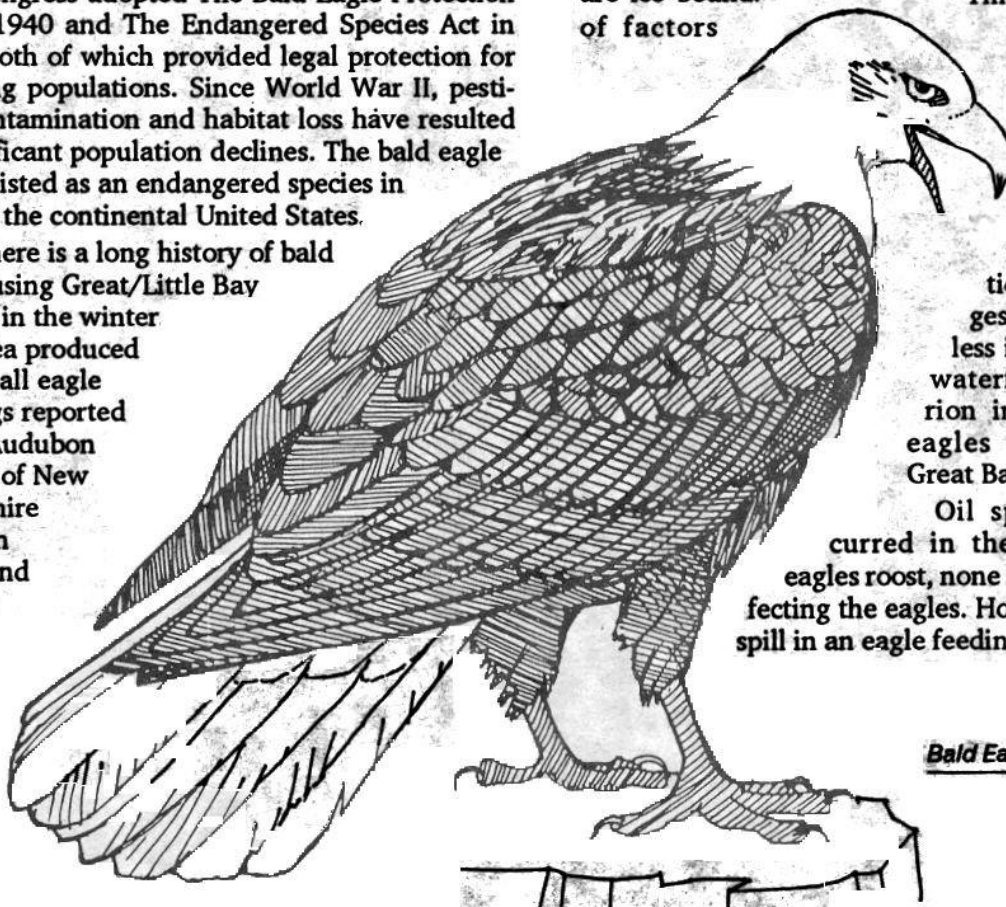
There is a long history of bald eagles using Great/Little Bay estuary in the winter. This area produced 27% of all eagle sightings reported to the Audubon Society of New Hampshire between 1949 and 1981,

and these reports showed that eagles occurred there in 17 of the 32 winters during that period. Researchers agree that eagles return to the same wintering areas on an annual basis. Preserving the integrity of individual wintering areas can be of major importance to eagle populations.

Three characteristics are identified as necessary for eagle winter use areas: presence of a good food source, history of eagle use, and protection from the elements and from human disturbance. The Great/Little Bay estuary is one of several locations in New Hampshire that meets these criteria.

Tides and topography within Great Bay provide some areas of open water throughout the winter. A large number of migrating and wintering waterfowl occur on the Bay from late October through March, and it is a popular sport hunting area. The estuary harbors a variety of fish and is heavily used by ice fisherman when the shallows are ice bound. This combination of factors provides an ample and diverse food supply for the wintering eagles. Limited observations to date suggest that fish are less important than waterfowl and carrion in the diets of eagles wintering on Great Bay.

Oil spills have occurred in the areas where eagles roost, none significantly affecting the eagles. However, a major spill in an eagle feeding area could be



Bald Eagle

a significant threat to the eagles, because they rely heavily on waterfowl for food.

Methods used by Audubon to protect eagle habitat include negotiating formal and informal agreements with owners of areas that provide perch trees and probable roost sites. These actions are taken to insure immediate protection of these areas. Plans are underway to designate approximately 1000 acres of the Pease Air Force Base (PAFB) shoreline as a National Wildlife Refuge. The refuge has been established; however, the official transfer is pending. Perch trees on the northern shoreline of PAFB will be protected permanently.

Eagle activity in the estuary increased throughout this century despite a period of absence

in the mid 1970's. Since 1983 the minimum number of eagles documented in a season was 7 and the maximum was 15. These sightings are a conservative estimate because Great Bay is a particularly difficult area in which to identify individuals due to the significant distance from which project staff must sight wintering eagles. The increase in the number of eagles sighted emphasizes the importance of maintaining the integrity of the area as a bald eagle wintering habitat. The continued study of Great Bay and protection of key habitat areas will be required in order to serve the needs of an increasing population of bald eagles.

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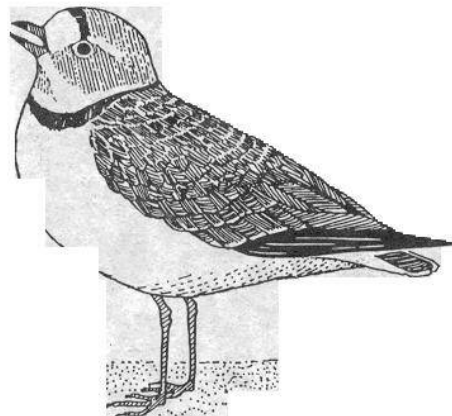
## PIPING PLOVER - state endangered, federally threatened

The piping plover (*Charadrius melodus*) is a small shore bird with a pale back and a single, usually partial, neck band. Its yellow bill has a dark tip in spring and is all dark in winter. Shoreline development and heavy use of beaches have contributed to the decline of this species from Maine to North Carolina.

Historically the piping plover nested on the sandy beaches of New Hampshire. The only remaining habitat exists in a sand spit on the southeast shore of Hampton Harbor, in the Hampton Harbor Wildlife Management Area. Plovers nested consistently at this site from 1951 or before, through the early 1970's. A pair was present and appeared to be nesting in 1984 but the attempt failed, presumably due to an extremely high tide. Single birds have been seen since then, but they haven't made any nesting attempts.

The 1991 breeding season brought improvement to the piping plover population on the Atlantic coast. As the regional population continues to grow with the support of intensive protection and management efforts, colonizing pairs can be expected to reoccupy former breeding habitat that remains suitable for nesting.

New Hampshire's breeding habitat at Hampton Harbor Wildlife Management Area experiences moderate recreational use in the warmer months. The amount of human activity is low in March and April when piping plovers return to settle into territories. The migrants visiting in 1988 and 1989 indicate that this area may still be attractive to plovers. Hampton Harbor Wildlife Management Area provides viable piping plover nesting habitat and has a high potential for eventual reoccupation.



Piping Plover



## NORTHERN HARRIER - state threatened

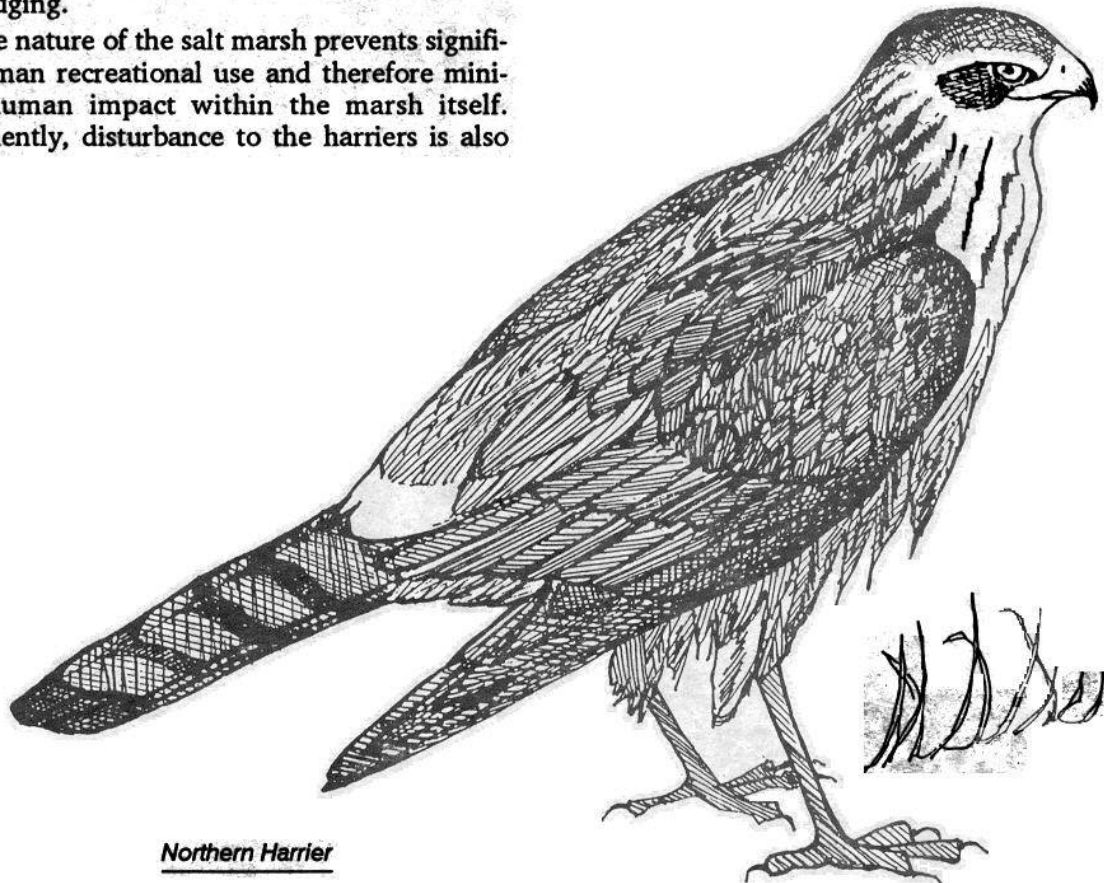
The northern harrier (*Circus cyaneus*) is a slim hawk of grasslands and marshes. Its long narrow wings, long tail and white rump are prominent. It feeds largely on rodents. When hunting it glides swiftly a few feet above the ground and holds its wings above the horizontal. Documented nest sites of the northern harrier in New Hampshire have occurred primarily north of the White Mountains during the past decade. Harriers were uncommon summer residents in the Durham area earlier in the century. Since 1963 there have been sightings which suggest possible nesting in the vicinity of Great Bay and Hampton Harbor.

The Audubon Society of New Hampshire's 1990 field results suggest that harriers may have nested in the Hampton marsh complex. Sightings of juveniles occurred shortly after the expected onset of fall migration. Young typically remain in the general vicinity of their nests for several weeks after fledging.

The nature of the salt marsh prevents significant human recreational use and therefore minimizes human impact within the marsh itself. Consequently, disturbance to the harriers is also

minimal. The marsh/upland interface however, is highly vulnerable to disturbance and development. With encroaching development, there is increased pressure from predation by dogs and cats along the marsh edge which can threaten harriers and other ground nesting birds. The remaining natural habitat along this interface needs protection for wildlife which use the marsh for foraging, but require upland habitat as well. Protection of upland buffers wherever opportunities exist around the edge of the marsh will be critical to the future of harrier breeding success in the Hampton marsh.

Both foraging and nesting habitat are less extensive and more fragmented in the vicinity of Great Bay and the Bellamy River. Potential breeding areas do exist and deserve continued monitoring.



Northern Harrier

## OSPREY - state threatened

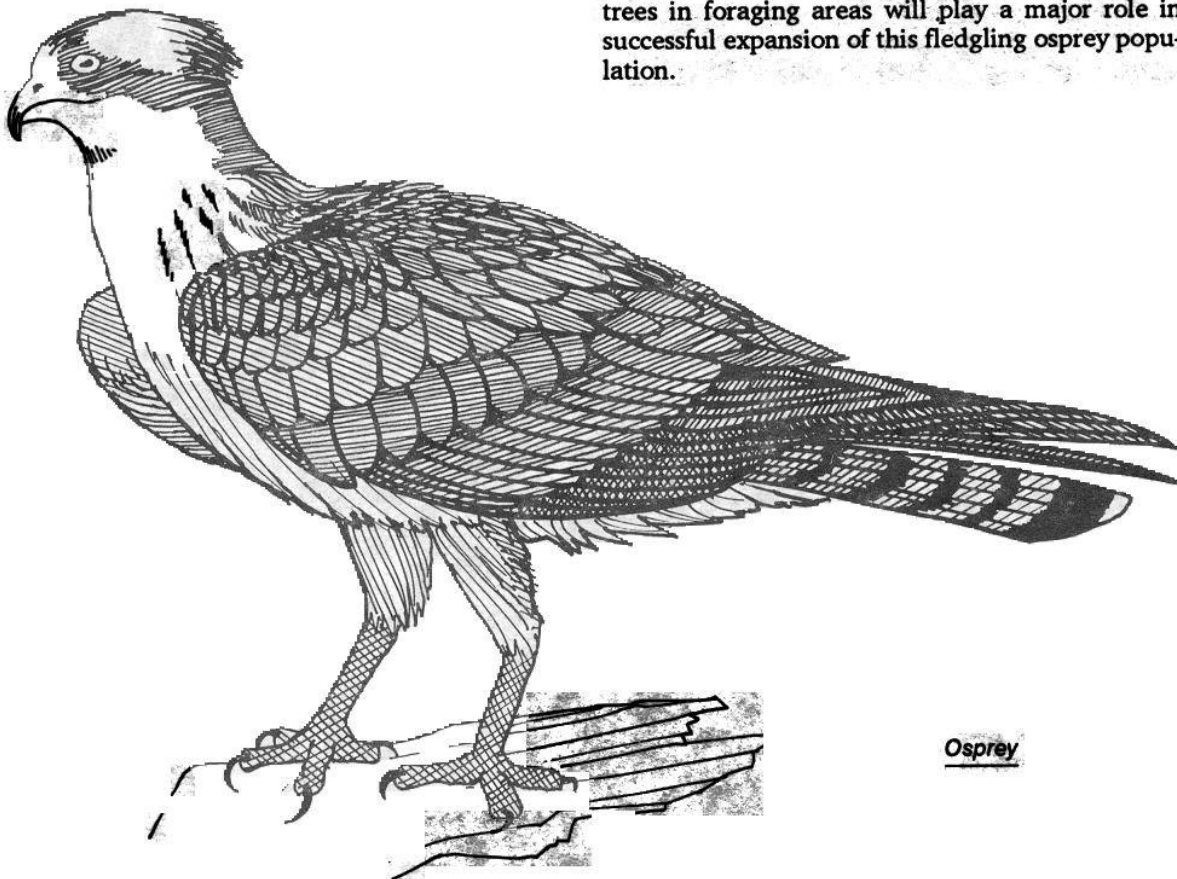
The osprey (*Pandion haliaetus*) is a bird of prey also known as the fish hawk. The wings are long with a conspicuous crook and a black wrist mark. Plumage is dark above and white below. Fish are its only prey and are taken at or just below the water's surface. They hover, often 50' to 150' high and suddenly plunge, sometimes going completely underwater.

During most of this century, the only known nesting osprey populations in New Hampshire occurred north of the White Mountains, primarily in the Androscoggin watershed. While ospreys may have nested at Great Bay during the 1800's, there was no documented evidence, until 1989, of ospreys breeding in New Hampshire's coastal region during the present century. In the spring of that year, an osprey pair enlarged a great blue heron nest in an abandoned rookery on a beaver pond in Durham, within two miles of Great Bay. Although

the nest was unsuccessful, as is often the case with first year pairs, the pair remained in the vicinity throughout the breeding season. Biologists installed a predator guard on the nest tree during the winter to prevent mammalian predation of eggs and young.

The 1991 breeding season progressed normally at the Durham nest site and had a highly successful outcome. The fledging of three young in both 1990 and 1991 indicates an ample food supply and strong parenting abilities in the adults. These factors combined with the nest's isolated location and installed predator guard, bode well for the pair's future productivity. Observations of additional adult ospreys indicate the possibility of an undetected nest or at least a newly formed pair.

Continued productivity of the breeding pair and possible further recruitment from their yet unknown source population will likely produce new nest sites in the coming years. Identification and protection of nest sites and preferred perch trees in foraging areas will play a major role in successful expansion of this fledgling osprey population.



Osprey

## UPLAND SANDPIPER - state endangered

The upland sandpiper (*Bartramia longicauda*) is a medium-sized, long-legged bird with a long neck, small head, short bill and relatively long tail. It flies stiffly, and briefly holds its wings erect after landing. During the late 1700's and 1800's European settlement converted eastern forests into extensive agricultural lands. Upland sandpipers, originally a prairie species, expanded eastward to New England. At their peak during the mid-1900's, these shorebirds were abundant migrants and nesting birds in central and southern New Hampshire, with peak populations during 1860 to 1880. They declined dramatically during the next several decades as gunners decimated sandpipers and other shorebird species for market hunting. This species became rare or disappeared from many former New Hampshire breeding areas by early 1900's. Subsequent legal protection brought about some increases during the 1920's. The decline of agriculture and more recent conversion of farmlands to industrial, commercial, and residential developments have slowed recovery.

Pease Air Force Base (PAFB) supports New Hampshire's only confirmed nesting population since the demise of several smaller populations

elsewhere in the state during the 1980's. The PAFB population includes 7-10 pairs. This site also supports a significant migrant population of upland sandpipers during the post-breeding period, and 60 birds may be present at one time.

Upland sandpipers use a combination of short grass and taller grass during the breeding season. They forage in short grasses while taller grasses provide critical cover for both adults and young. The grass at PAFB appears to be close to ideal due to mowing of the grass adjacent to the runways and some wetter areas that remain unmowed. Mowing practices throughout much of the coastal area may result in grass which is either too tall (hayfields) or too short (lawns).

Agriculture is declining and development is encroaching on prime upland sandpiper habitat throughout the coastal region. Working with landowners, especially on public lands, provides the best hope for enabling the current breeding population to recolonize habitat away from PAFB. Efforts to manage additional areas for upland sandpiper use may attract late summer migrants, and subsequently lead to colonization by nesting birds.



Upland Sandpiper

## COMMON TERN - state endangered

The common tern (*Sterna hirundo*) is a slender bird with long, narrow wings, forked tail and a pointed bill. Its wing tips are noticeably dark and its bill is bright red-orange with a black tip. It is usually found nesting in salt marsh areas but nests in other areas as well. Their principle prey species vary with tide levels and time after hatching. Feeding studies documented the flexibility of common terns in adapting to prey availability in different locations at varying tide levels (both daily and seasonal).

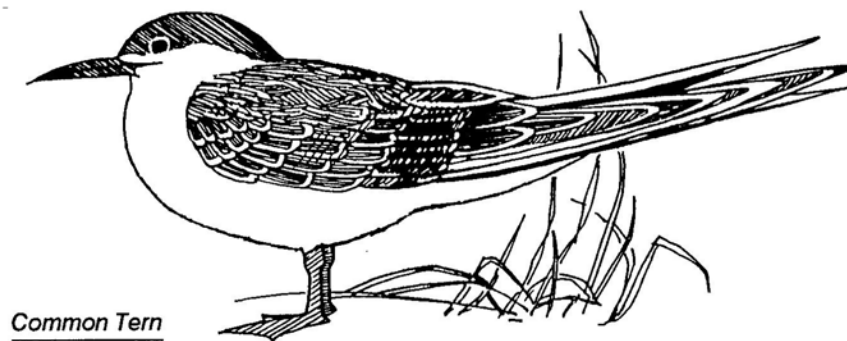
Historically, Lunging Island at the Isles of Shoals supported New Hampshire's most significant documented tern colony, including roseate, arctic, and common terns. Between 1928 - 1938, there were 1500 - 2000 common tern pairs. This colony's decline during the 1940's followed a decrease in human activity on the island and a subsequent increase in herring gull and black-backed gull numbers. Terns had abandoned Lunging Island by 1955.

Common terns also inhabited the Back Channel Islands in Portsmouth and New Castle. Abandoning these islands was probably a constructive move for the terns that had formerly attempted to nest there, since local great horned owls had deci-

ated their numbers annually and survivors had fledged no young for several years.

Results of nesting observations show low reproductive success and general difficulties experienced by terns nesting in mainland situations. The colonies at Hampton marsh and Seabrook have exhibited some nesting success. Each site varied somewhat and the Seabrook colony experienced some abandonment possibly hastened by heavy rains. Nesting attempts were successful for the Hen Island colony; these were usually attributed to: availability of nest sites well above the high tide line; no major predator problems; protective attitudes of people using the local mooring areas and tenacity of nesting pairs.

Since terns forage primarily in close proximity to colony sites, water quality can be determined through foraging observations. These birds can provide important indicators of local environmental quality. An oil spill during breeding season could be devastating to tern colonies. Infertility and physical abnormalities in chicks can indicate contaminants in the prey species. Maintaining water quality in the vicinity of tern colonies is of utmost importance.



Common Tern



## Conclusion

Increased development in the coastal region has many ramifications, one of which is habitat loss to our state's coastal rare and endangered bird species. Continued funding for monitoring and research on these species and their habitat needs, along with cooperation from agencies responsible for working with endangered species provides important information regarding the status and stability of these species. Identification of key habitat areas is critical to prevent habitat loss and to support and protect rare and endangered birds in the coastal region.

To help facilitate land use planning and to accommodate both human and wildlife needs, NH Audubon in conjunction with the NHCP recognize some potential methods of protecting endangered species in the coastal area. These include:

- negotiating agreements with land owners to be aware of and report any possible harassment to species in their area;
- requiring consideration of the needs of endangered species during project planning and permitting processes at all levels;
- acquiring land or easements to protect critical habitat for endangered species;
- preventing oil spills and other environmental disasters;
- increasing educational efforts.

Endangered species in the coastal zone can be viewed as important resources worth protecting. For further information on endangered species management and protection contact the agencies listed on the right.

The New Hampshire Coastal Program provided a grant for the preparation of this technical bulletin which was financed in part by the Coastal Zone Management Act of 1972, as amended; administered by the Office of Ocean and Coastal Resources Management, National Oceanic and Atmospheric Administration.

The information contained in this technical bulletin was obtained from reports compiled by Audubon from the 1983, 1990 and 1991 field research. The Coastal Program wishes to acknowledge the staff of the Audubon Society of New Hampshire for providing access to the data on these species and editing this document.

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